

Claims

- [c1] 1. A method for distinguishing the type of optical disc in an optical disc apparatus, the optical disc apparatus comprising a laser, a focusing lens, and a sensor for generating a signal corresponding to laser emitted light reflected from the optical disc, the method comprising: emitting light from the laser to the optical disc; moving the focusing lens such that a focal point of the focused light emitted from the laser moves through the optical disc at substantially constant velocity; while the lens is moving, measuring a first duration that the generated signal exceeds a first predefined threshold, the first predefined threshold indicating that the focal point of the focused emitted light is within a first layer of the optical disc; while the lens is moving, measuring a second duration between a first predetermined location in the generated signal during the first duration and a second predetermined location in the generated signal when the generated signal exceeds a second predefined threshold, the second predefined threshold indicating that the focal point of the focused emitted light is within a second layer of the optical disc;

distinguishing the type of optical disc according to the first duration and the second duration.

- [c2] 2. The method of claim 1 wherein if a ratio of the second duration to the first duration exceeds a predefined value, the optical disc is distinguished as a CD, and if the ratio of the second duration to the first duration does not exceed a predefined value, the optical disc is distinguished as a DVD.
- [c3] 3. The method of claim 1 wherein the first duration approximately indicates the amount of time taken for the focal point of the focused emitted light to pass through the first layer of the optical disc.
- [c4] 4. The method of claim 3 wherein the second duration approximately indicates the amount of time taken for the focal point of the focused emitted light to pass from the first layer to the second layer of the optical disc.
- [c5] 5. The method of claim 4 wherein a ratio of the second duration to the first duration approximately equals a ratio of a distance between the first layer and the second layer of the optical disc to a thickness of the first layer.
- [c6] 6. The method of claim 1 wherein the first layer is a surface layer of the optical disc and the second layer is a data layer of the optical disc.

- [c7] 7. The method of claim 1 wherein the first layer is a data layer of the optical disc and the second layer is a surface layer of the optical disc.
- [c8] 8. The method of claim 1 wherein the first predetermined location is the location recording a maximum SBAD signal within the first duration.
- [c9] 9. A method for distinguishing the type of optical disc in an optical disc apparatus, the optical disc apparatus comprising a laser, a focusing lens, and a sensor for generating a signal corresponding to laser emitted light reflected from the optical disc, the method comprising: measuring a first duration in which the generated signal exceeds a first predefined threshold, the first predefined threshold indicating that the focal point of the focused emitted light is within a first layer of the optical disc; measuring a second duration between a first predetermined location in the generated signal during the first duration and a second predetermined location in the generated signal when the generated signal exceeds a second predefined threshold, the second predefined threshold indicating that the focal point of the focused emitted light is within a second layer of the optical disc; distinguishing the type of optical disc according to a ratio of the second duration to the first duration.

- [c10] 10. The method of claim 9 wherein if the ratio of the second duration to the first duration falls within a first range of values, the optical disc is distinguished to be a DVD.
- [c11] 11. The method of claim 9 wherein the first duration approximately indicates the amount of time taken for the focal point of the focused emitted light to pass through the first layer of the optical disc.
- [c12] 12. The method of claim 9 wherein the first layer is a surface layer of the optical disc.
- [c13] 13. The method of claim 9 wherein the first layer is a data layer of the optical disc.
- [c14] 14. The method of claim 9 wherein the first predetermined location is the location where a maximum SBAD signal is generated within the first duration.
- [c15] 15. An optical disc apparatus comprising:
a laser;
a focusing lens for focusing light emitted from the laser onto an optical disc;
a sensor for generating a signal corresponding to laser emitted light reflected from the optical disc; and
a memory, the memory comprising:

a first predefined threshold used to determine when a focal point of the focusing lens is within a first layer of the optical disc according to the generated signal;
a second predefined threshold used to determine when a focal point of the focusing lens is within a second layer of the optical disc according to the generated signal; and
a predefined third value indicating a result range enabling optical disc type determination;
wherein a result is a ratio of a second duration required for the focal point to move from the first layer to the second layer and a first duration where the generated signal exceeds the first predefined threshold.

[c16] 16. The optical disc apparatus of claim 15 wherein if the ratio exceeds the predefined third value, the optical disc is distinguished as a CD.

[c17] 17. The optical disc apparatus of claim 15 wherein the ratio of the second duration to the first duration approximately equals a ratio of a distance between the first layer and the second layer of the optical disc to a thickness of the first layer.

[c18] 18. The optical disc apparatus of claim 15 wherein the first layer is a surface layer of the optical disc.

[c19] 19. The optical disc apparatus of claim 15 wherein the

first layer is a data layer of the optical disc.